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PARIS FOR POL: NOAH HARDIE
BRASILIA FOR POL: JOHN ERATH

E.O. 12958: DECL: 09/30/2034
TAGS: MTCRE ETTC KSCA MNUC PARM TSPA FR BR
SUBJECT: UPDATE CONCERNING CONVERSION OF SPACE LAUNCH
VEHICLES TO BALLISTIC MISSILES

Classified By: ISN/MTR Director Pam Durham.
Reasons: 1.4 (B), (D), (H).

¶1. (U) This is an action request. Please see paragraph 2.

¶2. (C) ACTION REQUEST: Department requests Embassy Paris provide the interagency cleared paper "Update Concerning Conversion of Space Launch Vehicles to Ballistic Missiles" in paragraph 3 below to the French Missile Technology Control Regime (MTCR) Point of Contact (POC) for distribution to all Partners. Info addressees also may provide to host government officials as appropriate. In delivering paper, posts should indicate that the U.S. is sharing this paper as part of our preparation for the Information Exchange that will be held in conjunction with the MTCR Plenary in Rio, November 9-13, 2009.
NOTE: Additional IE papers will be provided via septels.
END
NOTE.

¶3. BEGIN TEXT OF PAPER:

(SECRET REL MTCR)

Update Concerning Conversion of Space Launch Vehicles to Ballistic Missiles

Introduction

The MTCR has consistently recognized proliferation concerns associated with the shared technology and interchangeable components of Space Launch Vehicles (SLVs) and ballistic missiles. Nearly identical fabrication methods and common subsystems result in development and production efforts that are essentially indistinguishable from one another. The previous several decades are replete with examples of ballistic missile conversions to SLVs, such as the Atlas or Soyuz, and ballistic missile capability resulting from SLV development, such as India,s Agni missile. In 2009, Iran and North Korea both conducted launches that - although portrayed as
peaceful space launches - indicate these countries are making progress in their ability to develop long-range ballistic missiles.

The fundamental technologies used in SLVs are the same as
the technologies used in ballistic missiles. Historically, countries have developed long-range missiles and SLVs nearly simultaneously in order to capitalize on their investment in these interchangeable technologies. The use of existing ballistic missile hardware to develop major components of an SLV is typical. This is especially true for major subsystems, such as propulsion, thrust vector controls, and guidance and navigation. Not only does this provide for an added level of reliability in newly-designed systems, it provides a testing ground to further refine and advance the existing ballistic missile technologies. Additionally, new technologies and

components that are integral to ballistic missile programs can be developed and tested in an SLV program. Of particular concern are the development and testing of technologies associated with staging, upper-stage engine development, post-boost control systems, and advanced guidance, navigation, and control systems. This combination of refining existing technologies and developing new capabilities under the auspices of an SLV program provides a direct opportunity to transfer components and knowledge into a viable long-range ballistic missile program.

Iran

On February 2, 2009, Iran successfully used the Safir SLV, in only its second launch of this system, to place the Omid satellite into orbit. Like its historic predecessors, the Safir program was the beneficiary of Iran,s longstanding ballistic missile development. Its successful launch almost certainly advanced Tehran,s ability to develop longer-range ballistic missiles. Based on the significant details made public concerning the Safir, including photographs of the complete vehicle and various components, Iran has clearly capitalized on existing ballistic missile hardware in designing and building its SLV.

It is apparent from the photos that the first stage of the Safir is based on Iran,s Shahab-3 medium-range ballistic missile (MRBM). Furthermore, the second-stage of the Safir utilizes steering engines that are almost certainly derived from the Soviet-era SS-N-6 (Soviet designation: R-27 or RSM-25) submarine-launched ballistic missile. Iran could have acquired this technology from North Korea,s probable transfer of the BM-25 MRBM, which is a variant of Pyongyang,s SS-N-6-derived Musudan IRBM. In addition to the successful staging of these two main boosters, it is likely that Iran made progress with the use of high performance hypergolic (self-igniting) propellants in the SS-N-6-derived second stage. The adaptation of this propellant technology to missile systems could significantly enhance Tehran,s ability to develop a new generation of more-advanced ballistic missiles. Finally, the Safir successfully demonstrated the use of two-axis gimbaled engines for steering in the second stage. All of these technologies, demonstrated in the Safir SLV, are critical to the development of long-range ballistic missiles and highlight the possibility of Iran using the Safir as a platform to further its ballistic missile development.

North Korea

On April 5, 2009, North Korea conducted its second attempted launch of the Taepo Dong 2 (TD-2). Although the TD-2 failed to place a satellite into orbit, it demonstrated that North Korea is making progress in developing technology that can directly contribute to the production of long-range ballistic missiles. From the video of the TD-2 launch publicly released by North Korea, it is apparent that the TD-2 first stage makes use of hydrocarbon-based propellants. The system likely uses a first stage that incorporates a clustered-engine design of main engines and steering (vernier) engines.

The linkage of short-range ballistic missile technology adaptation to long-range ballistic missiles is evident in North Korea,s TD-2 program. The mass of the TD-2 and the relatively low thrust of Scud engines make it likely that the TD-2,s first stage was comprised of more than Scud-based engines. North Korea,s No Dong missiles, derived from Scud-B technologies, almost certainly utilize the same mix of hydrocarbon-based propellants as the original Soviet Scud-B. It therefore appears logical that the TD-2,s first-stage would
have been comprised of a clustered set of the higher-performing No Dong engines. While the details of the exact TD-2 launch configuration are unclear, it is logical to presume North Korea is following the time-tested concept of incorporating proven systems with newly developed technology to mitigate risk and speed development of longer-range systems.

While systems such as the Safir and TD-2 provide fertile ground for the development and testing of long-range ballistic missile technologies, there are still significant hurdles to overcome. In addition to more precise guidance and navigation, advanced thrust vector control systems, and sophisticated staging and separation systems, reentry systems pose unique challenges. The design and manufacture of warheads able to survive ICBM-range reentries is non-trivial and would require testing to validate the design and production process.

There should be no doubt that both the Safir and the TD-2
programs have advanced each country,s ballistic missile capabilities. While major technological hurdles still exist, the development times for long-range ballistic missiles can be greatly reduced by leveraging the technological advancements achieved with these two systems. These events of 2009 underscore the importance of continuing to recognize the fact that any rocket capable of putting a satellite into orbit is inherently capable of delivering weapons of mass destruction against surface targets. This recognition, coupled with the virtually identical and interchangeable technologies of SLVs and ballistic missiles, confirms the imperative for rigorous MTCR nonproliferation efforts.

END TEXT OF PAPER.

¶4. (U) Please slug any reporting on this or other MTCR issues for ISN/MTR. A word version of this document will be posted at www.state.sgov.gov/demarche.
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